

The amendment to claim 76 removes the basis for the rejection to this claim and the claims depending therefrom. With respect to claim 75, Applicants respectfully call the Examiner's attention to the fact that Faulds et al use whole *Mycoplasma* and identify only those antigens which are in abundance. By contrast, the claimed invention (which requires that the recited isolated antigen be prepared by a method wherein the recited biological sample is taken under the specific conditions and from sites recited in the claim) comprises a much smaller population of antigens which are detected by antibodies which arise shortly after a challenge. One of skill in the art would not expect that any of the claimed antigens produced by the recited method would be the same as or similar to the antigens identified in Faulds et al. Indeed, the molecular weights of the respective antigens are different from those identified by the recited method and it may therefore be concluded that a different population of antigens has been identified in the Faulds et al reference as compared with the claimed antigens produced by the recited method.

Although, as discussed in MPEP Section 2113, the Patent Office bears a lesser burden of proof in making out a *prima facie* case of obviousness for product-by-process claims, the Examiner has an initial burden of providing a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process (see MPEP Section 2113). In the present case, it is respectfully submitted that the Examiner cannot meet that burden for the reasons discussed above. The Patent Office certainly cannot meet the heavier burden of showing that the reference necessarily shows each and every element of the claim, as is required for a rejection under 35 USC 102 (see MPEP Section 2131).

With respect to claims 84 and 85, Applicants respectfully note that these claims are not drawn to an antigen *per se* as the Examiner has inadvertently stated. These claims are drawn to methods of indentifying probes produced by the recited steps (b)(i) to (b)(iv) of claim 75. As discussed above, Faulds et al do not disclose these specific steps whereby claims 84 and 85 clearly cannot be considered to be anticipated by the cited reference.

Claims 86 - 88 were rejected under 35 USC 102(b) as allegedly being aniticipated by Schaller et al. Applicants respectfully traverse this rejection.

Schaller et al do not anticipate these claims because they do not show or suggest a method using antibodies generated according to step (i) to (iv) of claim 86 in order to identify relevant antigens. These steps are very specific and are neither taught nor suggested by Schaller et al. The work of Schaller et al does not involve use of antibodies to specifically select for antigens which have a higher immunological relevance (i.e., for use in vaccines and diagnostics). The prior art specification uses antibodies derived from animal antisera which has been raised against preselected *Mycoplasma* fusion proteins (Schaller et al see column 10, lines 8 - 19 and column 13, first full paragraph, for example). By contrast, the antibodies of the claimed invention are derived from lesions or infection sites and are used to select relevant antigens from a mixture of relevant and irrelevant *mycoplasma* antigens. Applicants have recognized that antibodies collected from these specific sites, as distinct from antibodies circulating in the serum, have a greater ability to recognize immunologically relevant epitopes (see specification as filed at page 7, lines 17 - 25). There is nothing in the cited art that wold show or suggest this and, indeed, in using antibodies derived from antisera, the cited art teaches away from the claimed invention.

Claims 93 and 94 were rejected under 35 USC 112, second paragraph, for alleged indefiniteness. Applicants respectfully traverse this rejection.

As discussed in MPEP Section 2173.02, to satisfy the dictates of 35 USC 112, second paragraph, all that is required is that the claims define the patentable subject matter with a reasonable degree of particularity and distinctness. It is respectfully submitted that the term "functional equivalent thereof" as used in the subject claims meets this test. This can be seen, for example, from a Boolean search of the USPTO database which reveals hits for the identical term in the claims of twenty nine (29) US patents issued between 1996-2001 alone. Those of skill in the art would understand that the claimed term encompasses other amino acid sequences so long as the protein comprising such other amino acid sequences has the same function as the amino acid sequence encoded by the recited DNA fragment (claim 93) or as the amino acid sequence comprising the recited SEQ ID NO:2 (claim 94). Under these circumstances, the claims are respectfully considered to be sufficiently definite to satisfy the dictates of 35 USC 112, second paragraph.

From the Examiner's comments, it is clear that the remaining claims are rejected only because they depend from a rejected claim and no separate comment on these claims is believed to be necessary.

In view of the above, all rejections and objections of record are believed to have been successfully traversed and the application is believed to be in allowable form. An early notice

of allowability is earnestly solicited and is believed to be fully warranted.

Respectfully submitted,

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